

Strengthen the Semiconductor Ecosystem in Europe

Position Paper of the European Semiconductor Regions Alliance (ESRA)

*adopted at the Annual General Assembly in Dresden, Saxony on the 29th of May 2024
in view of the elections to the European Parliament
and the appointment of a new European Commission in 2024*

The European Semiconductor Regions Alliance (ESRA) is an alliance of European regions with relevant semiconductor industries including suppliers and strong research and development.

With further technological advances and progressing digitization, as well as a growing need for a green(er) economy, the importance of the semiconductor industry will keep on growing. Strengthening this key industry and joint innovation is therefore of central importance for all ESRA regions, and ultimately for Europe, in order to drive development and competitiveness.

The production of semiconductors is one of the most crucial and complex industrial sectors of all – it requires an intricate network of several entire high-tech ecosystems. So why do the regions play such a crucial role? The regions are home to and have formal authority for many of the small pieces of the puzzle that make up the semiconductor industry: manufacturers, suppliers and service providers, but also design houses, research & development, and science institutions. To ensure that these pieces fit together perfectly, they need suitable connections to each other and to the regions. These connections are also formed by infrastructure, for example, transportation networks, universities and educational institutions, energy and water supplies, and above all: people and networks! The regions play a pivotal role in providing all of this and make an important contribution to their financing, individually adapted to the specific regional requirements.

The Alliance's goal is to promote the growth and competitiveness of the semiconductor industry in our regions and throughout Europe by sharing knowledge and best practices, fostering collaboration and innovation, and supporting the development of strong and resilient value chains. We must not focus just on fabs: we must support the entire value chain. Because semiconductor production needs more than just a factory. It requires a complex ecosystem, global networking and firm roots in the regions!

The members align with the strategic objectives of the European Chips Act (ECA) of strengthening the EU's semiconductor ecosystem, reinforcing the supply chain resilience and reducing external dependencies where feasible and beneficial for European society and businesses, especially for critical raw materials.

The Alliance acts as a platform of and for the regions and as a partner of the European Commission in achieving the goal of Europe to reach a 20% share of global chip production by 2030 (currently below 10%). Assuming a global doubling of chip production by 2030, this means Europe will need to quadruple its production capacity.

The microelectronics industry is highly complex and forms ecosystems along the value chain. In addition to chip manufacturers, it is composed of numerous mid-caps, SMEs and start-ups from the supplier, IC design, test, packaging and service company sectors as well as research

institutions. These ecosystems are crucial for implementing scientific and technological innovations and need sustained support. The Alliance of European Semiconductor Regions proposes the following:

1. The implementation of the ECA and further government support measures are essential to increase the international competitiveness of the European semiconductor industry. This could include subsidies, innovative support elements such as tax reductions, and depreciation options for strategic investments. The effectiveness of the Chips Act should be regularly reviewed and improved through a systematic and critical evaluation process. The interests of the semiconductor industry need to be permanently anchored in the EU's multi-annual financial framework.
2. Current instruments such as the ECA and the Important Projects of Common European Interest (IPCEI) must be continued and further developed in a targeted manner. These instruments shall address all steps of the value chain including suppliers, design houses, backend, servicers, and research institutions. The focus has to be on simplifying, accelerating and digitizing the procedures. The "first of a kind" criterion must be interpreted as broadly as possible for the industry and R&D centers to address urgently needed critical semiconductors. This way midcaps, SMEs, and start-ups that produce goods with semiconductors of larger nodes can also benefit from the ECA and thus ensure sustainable value creation.
3. Industry and research must be strengthened along the entire value chain to increase the resilience of Europe's semiconductor industry. Furthermore, trade barriers and restrictions must not jeopardize the semiconductor industry and its achievements in Europe.
 - a. In addition to establishing further chip factories, existing SMEs along the entire semiconductor value chain must be strengthened through specific support programmes. These programmes should help midcaps, SMEs, and start-ups to achieve sustainable growth and economic access to technology centres, pilot lines and production facilities of chip factories.
 - b. Networking of research institutions and industry clusters within and between the various regions should be further promoted. This would position Europe as a global research hub for microelectronics and further the development of existing innovative strengths, in areas like photonics, quantum computing, power electronics, AI chips and RISC-V.
 - c. Creation of manufacturing pilot lines is key to impact industry, as already demonstrated by successful European projects to date. Investing in pilot lines enhances the scientific research landscape along the entire value chain. Pilot lines are the nucleus for the value creation of tomorrow. For a coordinated, successful approach, the early involvement of chip manufacturers, equipment providers and suppliers is essential. This strengthens cooperation between industry, R&D and science right from the start.
 - d. The semiconductor industry in Europe needs planning security. The proposed ban on thousands of substances as part of the amendment to the EU Chemicals Regulation would jeopardize the industry's survival. Therefore, the EU must ensure reliable framework conditions in the long term and withdraw this proposal. Otherwise, those chemicals will still be in use: unregulated outside of Europe. A risk-based approach that is sustainable for people, nature and the economy is necessary. We can only ban a substance, when an alternative is already available, which can take many years and needs clear support.
4. Creating additional incentives to foster cooperation in vocational education at all levels, with a particular focus on enhancing the appeal of STEM related education, especially for girls and women. This will strengthen the European labour market in the field of

semiconductor design and production, including the upstream and downstream value chains, and will contribute to securing skilled workers in the long term. To this end, the "European Chips Skills 2030 Academy", which is currently being established, must be implemented and expanded as quickly as possible. A stronger focus on skilled workers and early education opportunities in schools is needed in order to ensure a sustainable alleviation of the demand. A new Knowledge and Innovation Community (KIC) "Semiconductors" shall be established. A flagship project of this magnitude would not only appeal to Europeans, but can also develop a radiance beyond all borders. In addition, the Commission's EU Talent Pool proposal could help to bring international talents to Europe for vacancies, which are hard to fill in Europe.

As European Semiconductor Regions Alliance, we consider all these points to be essential in order to increase Europe's share of global chip production to 20% by 2030. According to assumptions of our clusters, this will require a total investment of several hundred billion Euros. The members of the European Semiconductor Regions Alliance can play a leading role in the implementation of these programs and investments. The ESRA invites the European Commission and the European Parliament to enter into a strategic dialogue with the regions - where the experts are located - and to include their proposals made in their future program.

Europe's semiconductor ecosystem is like a chip of the future: it can only be successful if all parts work together optimally as a whole!